Technical Study 15
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OF LABOUR: PROBLEMS OF
CONCEPT AND MEASUREMENT AS
SEEN FROM A CANADIAN
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**LABOUR MARKET DEVELOPMENT TASK FORCE
TECHNICAL STUDIES SERIES**

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ABSTRACT

THE SOCIAL OPPORTUNITY COST OF LABOUR: PROBLEMS OF CONCEPT AND MEASUREMENT AS SEEN FROM A CANADIAN PERSPECTIVE

Arnold C. Harberger

The purpose of this paper is to examine the appropriate valuation of labour costs to be used in carrying out cost-benefit analyses of labour market and job creation programs.

The social opportunity cost of labour consists of its private opportunity cost plus externalities. The private opportunity cost of labour is equal to that compensation which just barely will induce the worker to undertake, willingly, a specified activity. Private opportunity cost equals voluntary supply price.

Two important insights follow directly, once opportunity cost is identified with supply price:

a)   Each worker, in principle, has as many different opportunity costs of labour as he has different supply prices for different activities and locations;

b)   The private opportunity cost of labour is zero only in those cases (e.g., volunteer work for charity) in which a worker would willingly work without compensation. It is emphatically not zero for a typical unemployed person.

The supply price of labour is identified with total cash income, except in situations of cyclical unemployment. The adjustments made are as follows:

a)   When a worker changes his situation or location, society benefits to the extent that it can expect to pay him less unemployment compensation in the new situation than in the old. The adjustment to be made is to add (to private cost) expected UI payments associated with the new situation and to subtract expected UI payments associated with the old situation;

b) When a worker changes his situation or location
    society benefits to the extent that he pays higher
    taxes in the new situation than in the old. The
    adjustment to be made is to subtract from private
    opportunity cost the expected taxes that the worker
    will pay in his new situation, and to add (as a
    further cost) the expected amounts that he will
    cease to pay as a result of leaving his old
    situation.

c) With respect to the social opportunity cost of
    cyclical unemployment, calculations are made based
    on the assumption that the supply price of an
    unemployed worker may fall below the going market
    wage under conditions of recession or depression.
    In such cases, taking the going market wage as the
    starting point, an adjustment must be made to
    reflect the surplus that the worker himself gains by
    obtaining employment at a wage higher than his
    voluntary supply price.

In their studies for the Task Force, Glenday and Jenkins
have identified certain types of jobs (concentrated in
industries such as fishing, forestry, tourism, construction
and certain services) which have generated the great bulk of
the unemployment that Canada has experienced in recent years.
They call this group of jobs the "temporary sector," in
contrast to the "permanent sector," where unemployment
experience is minimal. This classification has been used in
this paper to carry out some hypothetical but, we believe,
realistic calculations of social opportunity cost for
Canada.

The striking result is that the creation of jobs in the
temporary sector carries with it social costs in excess of
the market wage. These are due to the fact that temporary
sector jobs (many of them seasonal) tend to carry with them
substantial spells of unemployment, which represent an added
social cost.

Permanent sector jobs, on the other hand, have social opportunity costs somewhat below the market wage. This is largely due to the fact that when permanent sector jobs are created, they tend to be filled ("sourced") in part via a reduction in the number of people employed in the temporary sector, with a consequent reduction in unemployment and a saving of UI payments.

The above differences between temporary and permanent sector jobs, are greater than any differences that could plausibly emerge because of variations in the cyclical stage of the economy. In separate calculations designed to approximate Canadian reality, it was found that the social opportunity cost of labour may be reduced by no more than 10 per cent if the economy is in a mild recession, by no more than 20 per cent if the economy is in a deep recession and by no more than 30 per cent if the economy is in a serious depression.

These reductions apply, of course, not for the life of a project or program, but only during the period when the economy is actually in the indicated stage. When the economy is currently in a mild recession, the discount on social cost of labour would presumably apply only in the current year. When the economy is in a strong recession, the discount might last for the current year plus the next year. And for a genuine depression the process of recovery might be presumed to last for a total of perhaps three years. Thus, even in the worst of circumstances, no discount (because of cyclical unemployment) should apply to outlays beyond three years from the current period.

LE COUT D'OPTION COLLECTIF DE LA MAIN-D'OEUVRE: PROBLÈMES DE CONCEPTION ET DE MESURE EXAMINÉS SOUS UN ANGLE CANADIEN

Arnold C. Harberger

L'étude a pour but d'examiner la méthode de calcul du coût collectif de la main-d'oeuvre en vue d'une analyse des coûts et avantages des programmes de création d'emplois.

Le coût d'option collectif de la main-d'oeuvre se compose du coût d'option individuel combiné aux facteurs externes. Le coût d'option individuel de la main-d'oeuvre est égal à la compensation qui incitera tout juste un travailleur à entreprendre de plein gré une activité précise. Le coût d'option individuel est égal au prix volontaire de l'offre.

Une fois que l'on établit la correspondance entre le coût d'option et le prix de l'offre, il en ressort deux points importants:

a) En principe, chaque travailleur a autant de coûts d'option distincts de la main-d'oeuvre, que de divers prix de l'offre pour des activités variées, exécutées dans des emplacements divers;

b) Le coût d'option individuel de la main-d'oeuvre n'est de zéro que dans les cas (travail bénévole) où un travailleur accepterait de plein gré de travailler sans compensation. Il n'est certainement pas de zéro pour un chômeur typique.

Le prix de l'offre de la main-d'oeuvre est déterminé d'après le revenu total en espèces, sauf dans les cas de chômage cyclique. Les rajustements effectués sont les suivants:

a) Lorsque qu'un travailleur change de situation ou de localité, la société en tire parti dans la mesure où elle peut s'attendre à lui verser moins d'assurance-chômage dans sa nouvelle situation que dans l'ancienne. Le rajustement à faire est celui d'ajouter au coût d'option individuel les prestations d'assurance-chômage qu'il aurait reçues

dans sa nouvelle situation et d'en soustraire les prestations qu'il aurait reçues dans son ancienne situation;

b) Lorsque qu'un travailleur change de situation ou de localité, la société en tire parti dans la mesure où le travailleur verse des impôts plus élevés qu'auparavant. Le rajustement à faire consiste à soustraire du coût d'option individuel les impôts qu'il devrait payer dans sa nouvelle situation et d'y ajouter (comme coût supplémentaire) les montants qu'il devrait cesser de payer parce que sa situation a changé.

c) En ce qui a trait au coût d'option collectif du chômage cyclique, les calculs sont basés sur l'hypothèse que le prix de l'offre d'un chômeur peut tomber sous le salaire en vigueur sur le marché lorsqu'il y a récession ou crise. Dans de tels cas, si l'on prend le taux du marché comme point de départ, on doit le rajuster pour tenir compte de l'excédent que le travailleur lui-même gagne en obtenant un emploi à un salaire plus élevé que le prix auquel il consentirait de travailler.

Dans leurs études préparées pour le compte du Groupe d'étude, Glenday et Jenkins ont recensé certains types d'emplois (qui se retrouvent surtout dans les industries de la pêche, de la foresterie, du tourisme, de la construction et de certains services) qui représentent la masse du chômage au Canada ces dernières années. Ils appellent ce groupe d'emploi le "secteur temporaire" par rapport au "secteur permanent" où le chômage est minime. Les auteurs se sont servis de cette ventilation pour faire certains calculs hypothétiques, mais à notre avis quand même réalistes, sur le coût d'option collectif au Canada.

Il en ressort de façon étonnante que la création d'emplois dans le secteur temporaire est liée à des coûts collectifs qui dépassent le salaire en vigueur sur le marché. Cela s'explique par le fait que les emplois du secteur temporaire (dont bon nombre sont saisonniers) sont en général assortis de périodes assez longues de chômage, ce qui représente un coût collectif supplémentaire.

Pour les emplois du secteur permanent, par contre, les coûts d'option collectifs sont un peu inférieurs au salaire en vigueur sur le marché. Cela s'explique en grande partie par le fait que lorsque ces emplois sont créés, ils ont tendance à être comblés en partie par des personnes occupant un emploi dans le secteur temporaire, de sorte que leur nombre s'en trouve réduit, que le chômage baisse et que l'on réalise des économies au chapitre des paiements d'assurance-chômage.

Ces différences entre les emplois du secteur permanent et du secteur temporaire sont plus grandes que tout écart qui pourrait raisonnablement surgir à cause des variations cycliques de l'économie. En effectuant des calculs distincts qui cherchaient à jauger la réalité canadienne, on a constaté que le coût d'option collectif de la main-d'oeuvre pouvait être réduit d'au plus 10 % si l'économie connaissait une récession mineure, d'au plus 20 % si la récession était grave et d'au plus 30 % s'il s'agissait d'une crise. Ces réductions ne s'appliquent évidemment pas pour la durée d'un projet ou d'un programme, mais seulement pour la période pendant laquelle l'économie en est à l'étape indiquée. En temps de récession mineure, le taux d'escompte du coût d'option collectif ne s'appliquerait présumément qu'à l'année en cours. Si la récession est forte, le taux d'escompte pourrait valoir pour une année supplémentaire. Dans le cas de crises authentiques, le processus de rétablissement économique pourrait supposément durer jusqu'à trois ans. Ainsi, même dans le pire des cas, aucun taux d'escompte (imputable au chômage cyclique) ne devrait s'appliquer aux déboursés pour une période supérieure à trois ans par rapport à la période en cours.

THE SOCIAL OPPORTUNITY COST OF LABOR: PROBLEMS OF CONCEPT AND MEASUREMENT AS SEEN FROM A CANADIAN PERSPECTIVE

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In this paper I attempt to set forth the basic analysis underlying the measurement of the social opportunity cost of labor. The analysis as such is general, and is not restricted to any geographic setting. Nonetheless, in the course of preparing this paper I have borne in mind that it is directed to a Canadian readership. Thus I have not tried to cover aspects of the problem that have little or no relevance in Canada, and I have implicitly assumed that the underlying institutional framework (legal arrangements, taxes, etc.) was like Canada's.

I. The Concept and the Basic Approach

The Concept of Social
Opportunity Cost

The notion of social opportunity cost derives from the recognition that societies (like individuals) must in general, in order to get something they desire, sacrifice something else (there is no such thing as a free lunch). In a normal market setting the appearance of an additional demand produces two types of response: a) additional production and b) reduced demand by other users. This is illustrated in Figure 1, where the initial market equilibrium at Q_0 is disturbed by the appearance of an incremental source of demand. This shifts the demand curve from the solid
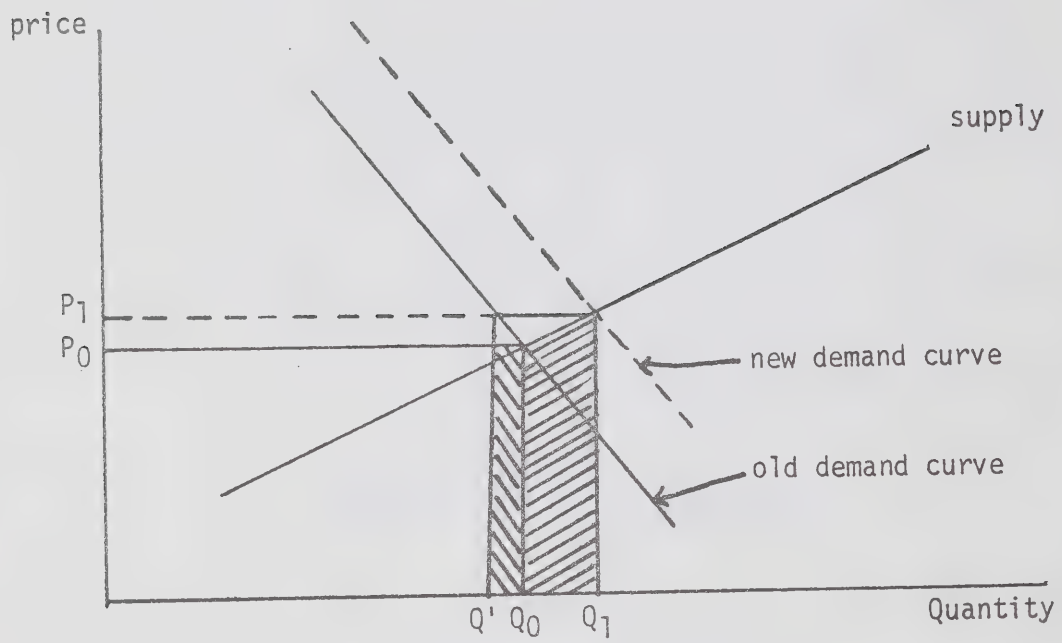
Figure 1

to the dotted line, and causes the price to increase from P_0 to P_1. The reaction in terms of the quantity variable is as follows:

    i) The economic agents who are responsible for the incremental demand get an amount equal to $Q'Q_1$.

    ii) The total amount produced increases from Q_0 to Q_1. On this part the opportunity cost involved is the cost of generating this additional supply. In the case of a commodity this cost will typically reflect the cost of the extra resources required to increase production from Q_0 to Q_1, a cost which typically can be measured by the area (shaded ▨) under the supply curve between the two quantities in question. When the diagram refers to labor services of a particular type in a particular region, the costs involved are the amounts needed to induce the additional supply to appear. This is similarly measured (at least in uncomplicated cases) by the area (shaded ▨) under the supply curve of labor in the relevant range.

    iii) The economic agents who were responsible for the old demand are induced by the rise in price to reduce the quantity they take from Q_0 to Q'. This entails an opportunity cost measured by the value that they place on the forgone units ($Q'Q_0$), which (again in uncomplicated cases) is measured by the area under the old demand curve (shaded ▧) between the initial and ending quantities taken by the economic agents whose behavior is reflected in the old demand curve. This part of the social opportunity cost can be thought of as a series of benefits forgone.

Opportunity Cost Equals Price
in Undistorted Situations

The area measuring the social opportunity cost associated with the incremental demand $Q'Q_1$ in Figure 1 can be seen to be smaller than the quantity $Q'Q_1$ times P_1, but larger than $Q'Q_1$ times P_0. This is always the case for demand and supply curves of the normal slope. In cases like the one depicted, however, which have demand and supply curves that are linear in the

relevant range, the social opportunity cost can be expressed quite precisely as $Q'Q_1$ times $[(P_0 + P_1)/2]$. Thus we can say that social opportunity cost equals price in undistorted situations, certainly for each successive small increment of demand from any new source, since for very small increments of demand, P_0 and P_1 will be arbitrarily close to each other.

Social Opportunity Cost in the Presence of Distortions

Where distortions are present one can no longer simply identify social opportunity cost with market price. Consider a situation where labor's earnings are subject to payroll and income taxes. This gives rise to a difference between the market wage (w_m) and the net wage (w_n) that labor actually receives. In such a case the social opportunity cost of filling a new demand for $Q'Q_1$ units of labor services would no longer be measured or approximated by the market wage. When, in the presence of the new demand, additional labor services are offered in the amount Q_0Q_1, the opportunity cost of those additional services is measured by their true supply price (the area under the true supply curve), rather than by their market supply price (the area under the market supply curve). The difference between these two supply prices corresponds to the payroll and income taxes that have to be paid. When these taxes are paid on the incremental units of labor services (Q_0Q_1), the taxes are indeed part of the gross or market wage that the employer pays, and they are a part of his private cost, but they are not part of the social cost of the additional labor services.

Thus there are two ways to express the social opportunity cost of labor, w_s, in the presence of the taxes mentioned. One would be as a weighted average of the two prices, the market wage w_m and the net wage w_n, with the weights being the relative shares of $Q'Q_0$ and Q_0Q_1 in the total
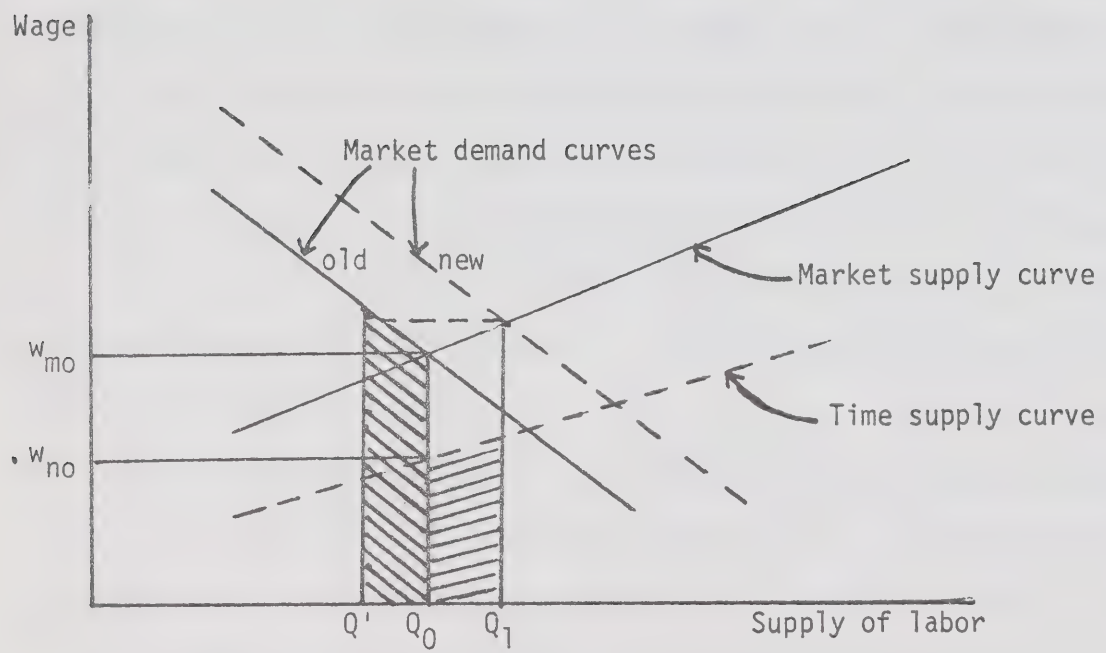
Figure 2

distance $Q'Q_1$. The other would simply be the market wage w_m, adjusted downward to reflect the fact that a tax distortion applies on increments of labor supply. In the first case the formula would be

$$(1) \qquad w_s = \alpha_1 \, w_m + \alpha_2 \, w_n,$$

where $\alpha_1 = (Q'Q_0)/(Q'Q_1)$ and $\alpha_2 = (Q_0Q_1)/(Q'Q_1)$. In the second case the formula would be

$$(2) \qquad w_s = w_m + \alpha_2(w_n - w_m).$$

Both formulas say the same thing in this simple case, but they represent two different ways of thinking about social opportunity cost. The first looks upon it as a weighted average of separate opportunity costs, in this case w_m and w_n, each of them reflecting what was given up in a particular source, per unit of labor services transferred from that source to help meet the increment of demand $Q'Q_1$. The second looks upon it as the wage that the new demanders must pay, adjusted by whatever externalities may be involved in meeting their new demand. In this case the externality is the difference between w_m and w_n, i.e., the taxes to be paid on the basis of the increase in labor services that occurs as a result of the new demand. This externality applies to a fraction α_2 of the total new demand $(Q'Q_1)$, the fraction being that portion of total new demand that ends up being met by net increase in supply.

When Supply Price Differs among Jobs and Regions

Although equations (1) and (2) say the same thing in simple cases, the conceptual difference between them should be clearly understood. In equation (1) we are taking as the measure of opportunity cost of labor from a

particular source, the market wage prevailing in that source. This market wage could be higher than the market wage at destination for at least two reasons: a) there might be a distortion, such as a tax, on the use of labor in the source in question, or b) the genuine supply price of labor might be higher at the source than at the destination. The formulation of equation (1) does not readily distinguish these two cases.

The formulation of equation (2) is more subtle and more versatile, because it can easily cope with the difference between cases a) and b). Let us suppose that the market wage in Ontario is $200 per week, while that in Nova Scotia is $150 per week. Using the conceptual formulation underlying equation (2), we would consider the basic wage w_m to be $200 if we were dealing with a project or program in Ontario, and to be $150 if we were dealing with a project or program in Nova Scotia. If, when the project was located in Nova Scotia, some of the workers came from Ontario, this would not lead to any alteration of the $150 figure as a measure of opportunity cost, except to the extent that distortions entered the picture.

Let us consider an example in which income and payroll taxes amount to $30 (on a wage of $200) in Ontario and to $20 (on a wage of $150) in Nova Scotia.

Now let there be a new project in Nova Scotia, hiring 100 workers at $150 per week. Let these have the following sourcing pattern:

From other jobs in Nova Scotia, also paying $150
per week   75

From other jobs in Ontario, paying $200 per week   15

From outside the labor force   10

Following the line of approach underlying equation (2), we take the basic market wage in Nova Scotia as the starting point, and adjust it for

externalities. On those who come from other jobs in Nova Scotia the externalities in effect cancel. On those who come from jobs in Ontario there is a net external cost of +$10 (which can be viewed as a loss of $30 per man week of taxes in Ontario, counterbalanced by a gain of $20 per man week in Nova Scotia). Finally, on those coming from outside the labor force there is a gain (of the type illustrated in Figure 2) of $20 per man week. Thus, in calculating the social opportunity cost of labor for Nova Scotia jobs we would have

$$w_s = \$150 + .75 \times (\$0) + .15 \times (\$10) + .10 \times (-\$20) = \$149.50.$$

The externalities in this example are practically fully offsetting. But such is not the case when we make a similar calculation for Ontario. Here we assume the following sourcing pattern for a project that hires 100 workers at $200 per week.

From other jobs in Ontario, also paying $200 per week	70
From other jobs in Nova Scotia, at $150 per week	20
From outside the labor force	10

The externalities again cancel for the first category. But those in the second and third reinforce one another. For those who move from Nova Scotia to Ontario there is an external gain (= reduction in social cost) of $10 per man week, as external benefits of $20 are given up, and replaced by ones amounting to $30 per man week. And for those who come from outside the labor force there is a gain in this case of $30 per man week. In the Ontario case, then, the calculation of the social opportunity cost of labor becomes:

$$w_s = \$200 + .7 \times (\$0) + .2 \times (-\$10) + .1 \times (-\$30) = \$195.$$

In these calculations we have so far taken no account of the phenomena of unemployment and unemployment compensation. These will be dealt with in subsequent sections.

II. Migration and Unemployment

Equilibrium Unemployment

The phenomenon of chronic unemployment, at rates far in excess of what might be explained in terms of the normal frictions of the economy, stood for a long time as a challenge to economists. By 1970 or so, how-ever, explanations were developed that rationalized its existence under at least two different sets of circumstances. In the first of these, the key factor causing the emergence of chronic unemployment is the existence of one or more sectors which for institutional reasons [government minimum wages, trade union power, company policy (particularly by large multinationals)], pay wages and salaries that are above the prevailing equilibrium in the remainder of the labor market. Depending on the context, writers have used different terms (modern vs. traditional; union vs. nonunion; etc.) to denominate these two sectors. In the Canadian setting I prefer to use the more neutral terms protected and free-market to distinguish them one from the other. In Figure 3, a labor market is depicted (for a particular quality or skill level of labor, in a given geographical labor market) in which w_p is the protected sector wage. The diagram shows how the free-market sector wage is determined by the forces of supply and demand under these conditions. This analysis assumes that employers (or unions) choose precisely who (among the set of workers willing and equally able to work there) will in fact occupy the limited number of posts available in the protected sector on some basis other than the basic supply price at which
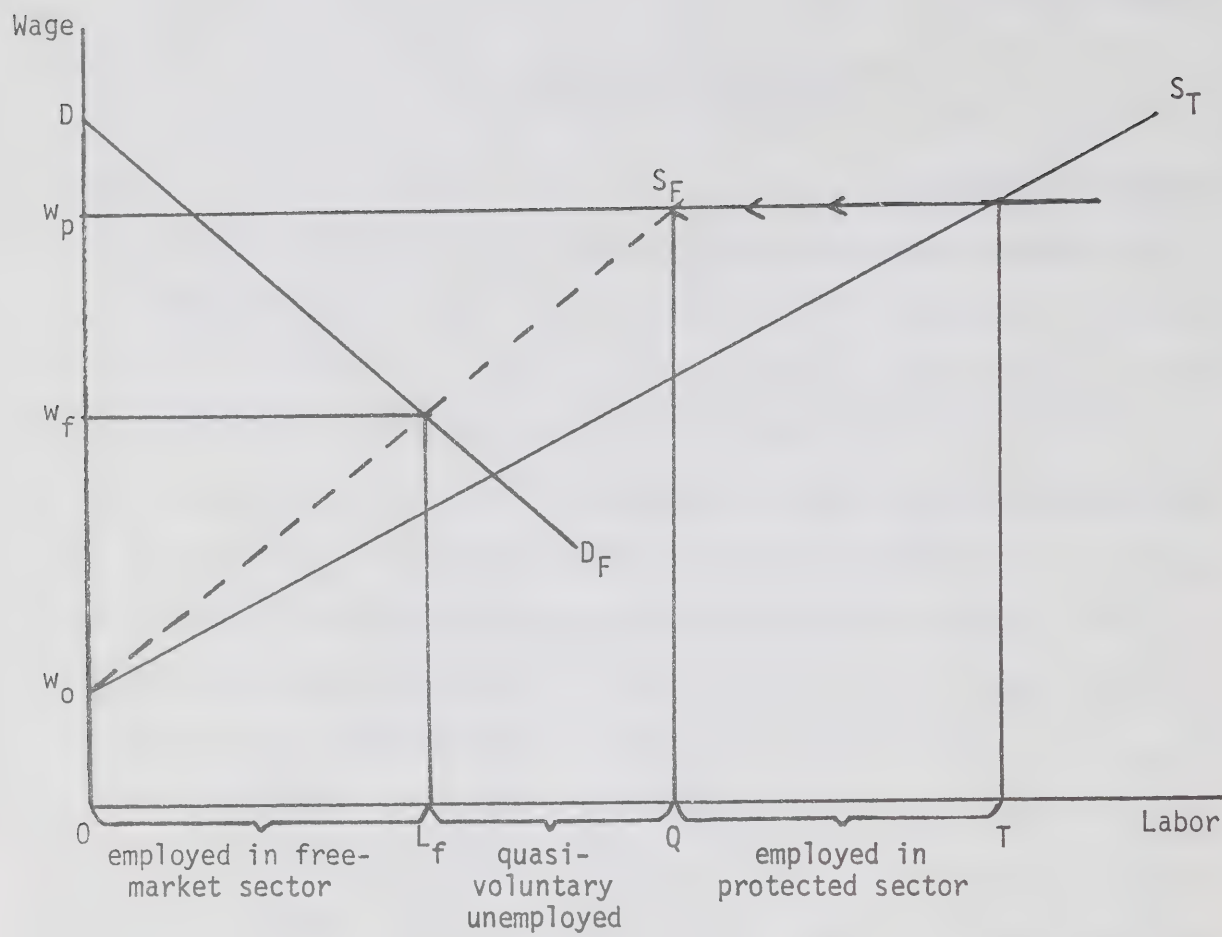
Figure 3

each worker is in principle prepared to offer his labor services.

In Figure 3 S_T is the overall supply curve of labor in the market in question and OT is the total amount of labor offered at the protected sector wage. The assumption that the selection of the specific individuals represented by QT is independent of their supply prices means that the supply curve facing the free-market sector will simply be $w_0 S_T$, reduced laterally by the fraction $(QT)/(OQ)$. This yields the dotted line $w_0 S_F$. The intersection of this curve with the free-market demand curve DD_F determines the free-market wage w_f, at which OL_F of labor is demanded. The chronically unemployed in this case are the workers represented by the distance $L_F Q$. I call them the _quasi-voluntary_ unemployed because of the fact that they do not choose to take jobs in the free-market sector, this choice of course being determined by the fact that their basic supply price of labor is above the free-market wage. But at the same time that they are unprepared to take a job at w_f, they are more than willing to work at w_p. In general they will actively seek jobs there, and will consider themselves to be involuntarily unemployed because they are seeking work (at w_p) and not finding it.

This model leads to a social opportunity cost of labor that varies, depending on whether the jobs in question are created in the protected or in the free-market sector. The basic opportunity cost of filling jobs in the free-market sector itself is simply the free-market wage, w_f, modified to take into account any externalities (such as the taxes mentioned in the preceding section) that may be present in the specific case being studied. The opportunity cost of filling jobs created in the protected sector is a weighted average of w_f, the free-market wage, and $[(w_f + w_p)/2]$, the average supply price of the quasi-voluntary unemployed. The relevant

weights are the probabilities that workers in each of these categories
will be chosen. Under the assumption that the criterion of choice is
unrelated to the supply price these weights are simply the fractions
$L_f/(L_f + U_{qv})$ and $U_{qv}/(L_f + U_{qv})$, where L_f is the amount of employment
in the free-market sector and U_{qv} is the amount of quasi-voluntary unem-
ployment.

Search Unemployment

The market situation depicted in Figure 3 explains the phenomenon of
chronic unemployment, but it does so in a rather mechanical way. All
workers, whether employed in the free-market sector or in the situation of
quasi-voluntary unemployment, are there assumed to have an equal chance at
new protected-sector jobs. The problem posed by this assumption is that
some of these workers (e.g., those with alternative earnings equal to w_f
or with supply prices not much in excess of w_f) stand to gain a lot (by
their own assessment) from obtaining a protected-sector job at w_p, while
others (the quasi-voluntary unemployed with supply prices close to w_p)
stand to gain relatively little. It follows from this that the former
group should be willing to go to greater lengths--to sacrifice more time,
effort and even money outlays--in order to obtain a protected-sector job.
A part of this extra sacrifice is likely to be reflected in the form of
search unemployment, which may be thought of as a particular form of quasi-
voluntary unemployment. Search unemployment can be thought of as a way in
which a worker can enhance the probability of his getting a protected-
sector job.

Figure 4 depicts a labor market in which both search unemployment
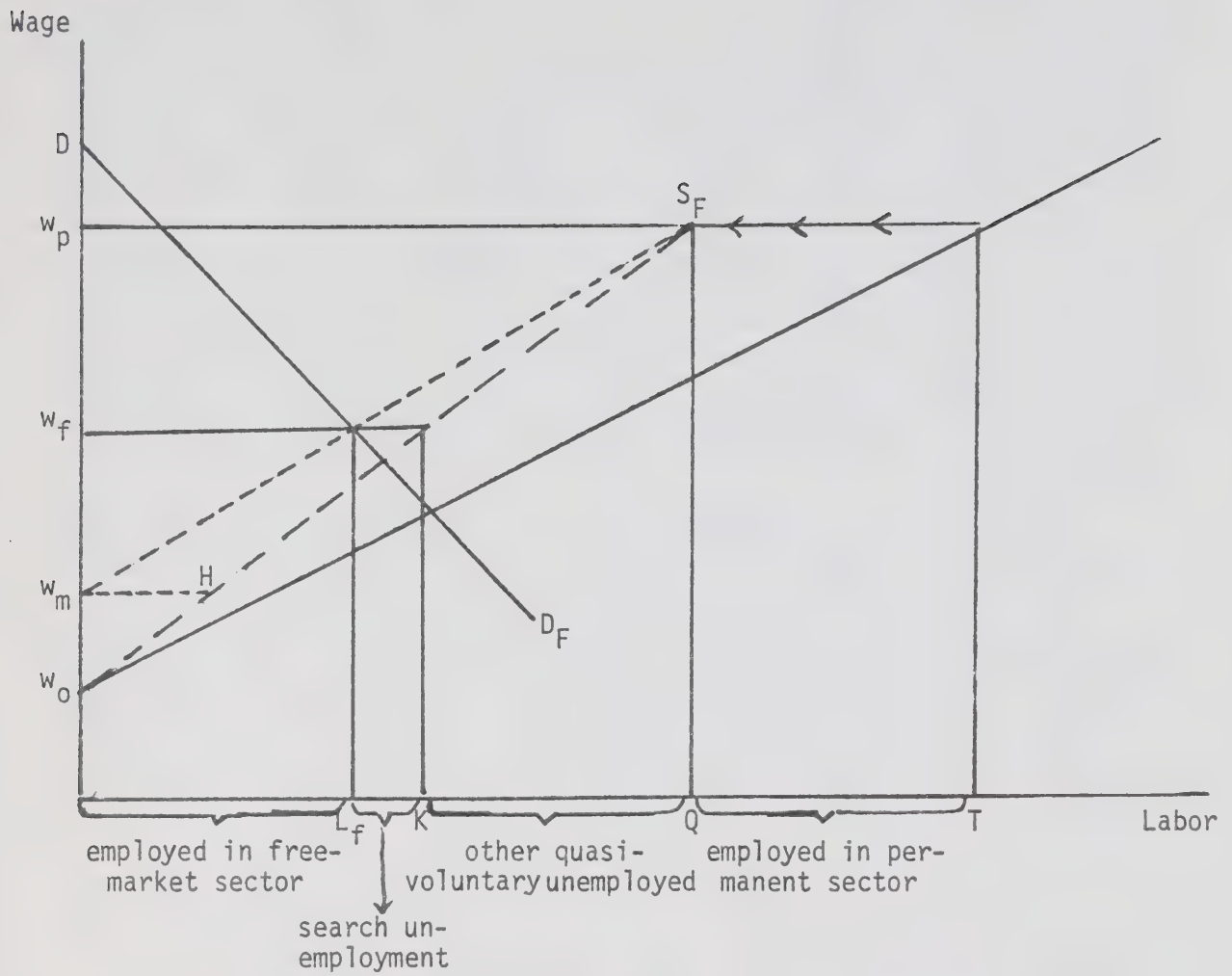and the standard type of quasi-voluntary unemployment coexist. The curve

Figure 4

$w_m S_F$ is now the supply curve of labor facing the free-market sector. The lateral distance between $w_m S_F$ and $w_0 S_F$ is the amount of quasi-voluntary unemployment corresponding to any given free-market wage. This distance is at a maximum at the wage w_m, where all voluntary participants in the labor market would prefer to remain unemployed, while searching for pro-tected-sector jobs, in preference to accepting free-employment at w_m. As the free-market wage rises, fewer and fewer workers are willing to forgo free-market earnings in order to seek protected-sector jobs, until, finally, as the free-market wage approaches w_p, the volume of search unemployment approaches zero.[1]

The measure of the opportunity cost of labor for the search-unemployed is in some ways different from and in other ways similar to that for the other quasi-voluntary unemployed. The key element here is that the quasi-voluntary unemployed are unwilling under any circumstances to work at the wage w_f, absolutely <u>requiring</u> a higher wage (given by their respective supply prices) in order to provide labor services. Those who opt for search unemployment, on the other hand, do so by voluntarily accepting a gamble, in which one outcome is to be unemployed, and the other to have a protected-sector job. But what is the value of that gamble to them? It is precisely the free-market wage at which they would willingly withdraw from the search process. The number of workers who would opt for search

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[1]Obviously, the volume of search unemployment depends on w_p. Raising w_p would shift the curve $w_m S_F$ upward; lowering it would shift the same curve downward. More realistically, one should think of the protected sector as containing many components, with different protected-sector wages w_{p1}, w_{p2}, . . . w_{pj}. Raising any of these, while keeping the rest constant, would shift a curve like $w_m S_F$ in the upward direction; i.e., the supply price at which any given quantity of labor would be made available to the free-market sector would be raised.

unemployment is $w_m H$ when the wage is w_m; it is $L_f K$ when the wage is w_f.

The workers (numbering $w_m H$ minus $L_f K$) who leave the search status as

the wage moves from w_m to w_f, have supply prices averaging $(w_m + w_f)/2$. By

the same token, workers drawn from search unemployment in order to take

jobs ar w_p will (with linear supply curves) have supply prices averaging

$(w_f + w_p)/2$. Thus the private opportunity cost that we assign to the

search unemployed that are absorbed as one expands employment in the pro-

tected sector would be $(w_f + w_p)/2$. At the same time, a social opportunity

cost of only w_f would be assigned to the search unemployed that are absorbed

via the expansion of employment in the free-market sector. Numerically,

these are the same figures that would be assigned, in similar circumstances,

to the other quasi-voluntary unemployed who are absorbed by the expansion

of jobs in, respectively, the protected and the free-market sectors. In

both cases, too, the private opportunity cost should be adjusted for external

effects such as unemployment compensation payments saved and increases in

taxes received from the workers in question.

Migration-fed Unemployment

The second set of circumstances under which the phenomenon of chronic

unemployment proved amenable to explanation was that in which unemployment

proved to be the equilibrating factor keeping a flow of migration (usually

from rural to urban areas) in equilibrium. This particular type of un-

employment appears to be quite common in less-developed countries, but

relatively rare in more advanced countries. It is probably true, however,

that the model can be applied to the case of the United States and Canada

during the great depression of the 1930's, when the rural sector absorbed

reflux migration from urban areas via sharply declining real wages, while

in the urban sector more rigid wages were combined with high unemployment.
The notion of equilibrium is relevant here in the sense that marginal migrants
or potential migrants should be on the borderline of indifference as between
(i) remaining in (or going to) the city and taking their chances of finding
employment at relatively good wages on the one hand or suffering unemploy-
ment on the other and (ii) returning to (or staying in) the rural regions
and areas to find work (in season) with comparative certainty but at low
wages.

III. Sectoral Chronic Unemployment with Compensa-tion: The Canadian Case

The model which seems best to explain recent patterns of unemployment
in Canada is one of sectoral chronic unemployment supported by unemployment
compensation. The data reveal that the great bulk of the actual unemploy-
ment experienced by Canada in recent years has been concentrated in a rela-
tively narrow subset of industries or activities, all of them characterized
either by rather sharp seasonality (tourism, forestry), demand volatility
(construction), or high incidence of casual employment (services). Charac-
teristically, the unemployed released periodically from these activities
experience repeated spells of unemployment that last for substantial amounts
of time. At the same time, the remaining sectors of the economy appear to
generate relatively little unemployment. The sharp dichotomy between the
experience of the two sectors dictates that they be treated differently in
economic analysis. The terminology that has evolved to describe them dis-
tinguishes between a temporary sector (fishing, forestry, tourism, construc-
tion, etc.) and a permanent sector (the rest of the economy).

Unemployment Compensation and
the Temporary Sector

It is important to realize that much of the unemployment that is re-
corded in the temporary sector would probably not even have been reported,
were it not for the fact of unemployment compensation. But once their
eligibility for compensation is legally established, the affected indi-
viduals are only acting rationally in reporting themselves as unemployed.
And once the systematic use of unemployment compensation is established,
the calculation of the social opportunity cost of labor becomes different
and more complicated. For unemployment compensation, like taxes, gives
rise to externalities.

When the temporary sector is characterized by a specific relation-
ship between time worked on the one hand and time spent unemployed on the
other, it is appropriate for us to consider the worker as receiving cash
income both from his labor and from his time spent unemployed. When he
compares alternative possible occupations and/or activities, the option of
temporary sector employment will in reality be a "package," in which his
cash receipts from both wages and unemployment compensation will count, as
well as the specific utility or disutility he derives from working or being
unemployed. All these factors taken together will determine the supply
price of his labor to the temporary sector, and (in conjunction with
similar attributes of alternative jobs) to the relevant alternative
activities.

The package that the worker considers in connection with each job
includes unemployment compensation as a source of cash income, and the
unemployed state as a source of utility or disutility. When it comes to
measuring the externalities connected with such a package the economist is

only concerned with whatever distortions or externalities may be present.
From the information we have dealt with up to now, two sorts of exter-
nalities may be distinguished: taxes, as dealt with in Section I, plus
unemployment compensation. For simplicity let us assume that the permanent
sector jobs in Ontario and Nova Scotia carry with them essentially zero
probability of unemployment, while temporary sector "packages" contain
80 percent work and 20 percent unemployment in Ontario, and a 60/40 break-
down between work and unemployment in Nova Scotia.   The key characteristics
of the four "packages" are described in Table 1.

TABLE 1

ASSUMED CHARACTERISTICS OF JOB "PACKAGES"

| Type of Job | Wage per Week Worked | External Costs per Average Week Worked | | |
		Taxes	Unemployment Compensation	Total
Permanent, Ontario	$200	-$30	0	-30
Temporary, Ontario	$200	-$24[a]	$24[b]	0
Permanent, Nova Scotia	$150	-$20	0	-20
Temporary, Nova Scotia	$150	-$12[c]	$36[d]	24

[a]$24 = .8 x $30, based on 80 percent employed time.

[b]$24 = .2 x .6 x $200, based on unemployment compensation at 60 percent
of wage, plus 20 percent unemployed time.

[c]$12 = .6 x $20, based on 60 percent employed time.

[d]$36 = .4 x .6 x $150, based on unemployment compensation at 60 percent
of wage, plus 40 percent unemployed time.

Table 2 presents the calculation of the social opportunity cost for the
four cases considered. For columns (a) and (c), which refer to jobs created

TABLE 2

CALCULATION OF SOCIAL OPPORTUNITY COST OF LABOR

	Ontario		Nova Scotia	
	Permanent (a)	Temporary (b)	Permanent (c)	Temporary (d)
(1) Weekly Market Wage	200	200	150	150
(2) Fraction of Time Worked	1.00	.80	1.00	.60
(3) Average Earnings per Week (w_m)	200	160	150	90
(4) Unemployment Compensation Received per Week $[=(1) \times .6] \times [1-(2)]$	0	24	0	36
(5) Total Cash Income $[=(3)+(4) = $ supply price$]$	200	184	150	126
(6) Externalities Generated by "package," per Week				
Taxes	-30	-24	-20	-12
Unemployment Compensation	0	+24	0	36
(7) Externalities Generated by Sourcing from				
Ontario, permanent	.5(30)	.3(30)	.1(30)	0(30)
Ontario, temporary	.2(0)	.5(0)	.1(0)	.2(0)
Nova Scotia, permanent	.1(20)	0(20)	.5(20)	.3(20)
Nova Scotia, temporary	.2(-24)	.2(-24)	.3(-24)	.5(-24)
(8) Total Social Cost per Week $[=(5)+(6)+(7)]$	182.2	188.2	135.8	144
(9) Social Cost per Week Worked $[=(8) \div (2)]$	182.2	235.2	135.8	240

in the permanent sector, the operations are relatively simple. The market wage [$200 in column (a)] is adjusted for the fact that those employed on the new job will pay payroll and income taxes of $30. Then it is recognized that certain externalities are created in the process of drawing the workers from various sources to fill the jobs in question. The numbers in parentheses in row (7) are the net externalities associated with drawing a worker from the source in question. They are the negative of the total external costs (taxes plus unemployment compensation) associated with that source and given in Table 1. (The reason for taking the negative is that Table 1 gives the external costs of placing a worker in the type of job in question, while in row (7) of Table 2 we reflect the external costs associated with taking a worker out of such a job.) These external costs are multiplied by assumed weights [the numbers without parentheses in row (7)] reflecting the expected pattern of sourcing in the process of filling jobs of the type in question. In row (8) we simply reflect total social opportunity cost of labor associated with creating the job in question. Row (9) is the same as row (8) for columns (a) and (c) under our assumptions.

Columns (b) and (d) differ basically because of the phenomenon of temporary sector unemployment. The average wages earned per week are therefore not equal to the market wage, but instead to that wage times the fraction of time worked. But also unemployment compensation is received, and its expected amount (equal to the figure in last column of Table 1) is reflected in row (4) of Table 2.

In rows (6) and (7) we include the externalities generated for each job created. Those in row (6) reflect the same concepts as before, and are drawn from Table 1, including, of course, the additional cost of unemployment compensation generated by creating a job in the temporary sector. In

row (7) we have again a series of products of the probability that workers will be sourced from jobs of a given type, times the net external cost involved in so doing. Row (8) is again the total social opportunity of creating a job of the given type. It is expressed on a per week basis, not on a per week worked basis. Row (8), in a sense, is what is relevant per seasonal job created in a seasonal industry. It looks at the typical worker, and carries him through a period of employment, and of unemployment, summing the total social costs of both. In row (9) this figure is adjusted to a per week worked basis, simply by dividing by the fraction of time that workers in the sector in question are typically employed.

The Nature of the Key Results

The results of Table 2 show the possibility of dramatic differences in social opportunity cost, especially as one moves between permanent and temporary sectors. For the same market wage, the social externalities always produce a reduction in social cost for permanent sector jobs, and an increase in social cost (vis-a-vis the market wage) for temporary sector jobs. The reason for this is the adjustment made between rows (8) and (9) of Table 2, to express social costs on a per-week-worked basis. This is the cost that should most appropriately be compared with the market wage, which is what employers take to be their private cost. Note that the ratio of social [row (9)] to private cost [row (1)] is about .9 for both of the permanent sectors, while it is about 1.18 for the Ontario temporary sector and as high as 1.60 for the Nova Scotia temporary sector in the examples given (which appear to be plausibly realistic).

A Note on the Sensitivity of Migration to Economic Conditions

It may be surprising to some that in assigning weights showing the

relative sourcing of labor, we have given weights of from 20 to 30 percent to sources outside the province in which the jobs in question are being created. To be sure, it is only an illustrative exercise that we present, but all the same we have attempted to make the exercise meaningful by the choice of plausible magnitudes. High weights were put on interprovincial sourcing, then, not out of caprice but because we believe that they reflect Canadian reality.

The key to understanding migratory phenomena lies in recognizing the great difference (in most cases) between gross and net migration. At a time when a particular area is losing population at a rate of 1 percent per year, it is quite likely that its gross loss will be 3 or 4 (or more) percent per year, counterbalanced by a gross in-migration of 2 or 3 percent per annum.

One must remember, too, that each component of the gross flows responds to economic stimuli. A deterioration of economic conditions in the province in question will both accelerate the gross outflow and deter the gross inflow, and an improvement will work in the reverse direction. Suppose, for example, that the net migration of working-age population out of the Maritime provinces is 1,000 per year, consisting of a gross outflow of 4,000 minus a return flow of 3,000. Suppose, too, that as a consequence of the creation of 300 new jobs in the Maritimes, each of these flows alters by just 1 percent, i.e., out-migration is reduced to 3,960 and in-migration is increased to 3,030. The net result is the effective sourcing of 70 jobs from outside the province. It is the dual action of the stimulus on the separate gross flows that accounts for migration to have an importance in the sourcing pattern that looks large relative to the net flows. This type of effect is familiar to economists who deal with the phenomenon of excess demand or excess supply in any of their numerous manifestations.

IV. Cyclical Unemployment in the Evaluation of Projects and Programs

It has always been difficult to incorporate the phenomenon of cyclical unemployment in practical applications of social cost-benefit analysis. In part the difficulty stems from the nature of the phenomenon, cyclical unemployment being both temporary and unpredictable. We may know that it is present today, but it is absurd on its face to ask for predictions as to whether (and how much) cyclical unemployment will be present five or ten years from now. Yet most projects and programs that we evaluate have not yet been decided upon when the evaluation takes place, so the bulk of their costs and benefits are likely to accrue at times that are too far in the future for it to make sense to predict the cyclical state of the economy. In these cases the best prediction is that the economy will neither be in recession nor overheated--i.e., that its state of health will be "normal." This in general implies making no cyclical adjustments in the course of the analysis.

There may, however, be situations in which the public authorities, recognizing that they are currently in a state of cyclical recession or depression, may have a shelf of projects available for quick implementation. It would then be appropriate to evaluate these projects taking into account the prevailing cyclical situation. In what follows I attempt to outline the sort of approach that might be taken, in estimating the social opportunity cost of labor under such circumstances.

This brings us to recognize that another reason why attempts to incorporate cyclical phenomena into social cost-benefit analysis have tended to be frustrated is the inherent difficulty of the problem. It cannot at all be said that economic science today possesses a reasonably well-accepted

answer to the diagnostic, analytical and methodological problems involved. Thus in what follows we shall to some degree be carrying out exercises that are novel and experimental, in terms of the present state of the literature of the subject.

Basic Methodological Considerations

Probably the first element on which to try to reach a consensus in dealing with a situation of cyclical unemployment is that the presence of cyclical unemployment does not by any means determine that all workers who are hired in a period of recession will come from the ranks of the unemployed. The ultimate pattern of sourcing may be different in a period of recession from what it is in normal times, but it is not likely to be dramatically different. And such differences as exist are likely to be relatively smooth functions of the underlying state of the economy, rather than abruptly discontinuous ones. Thus if in normal times 90 percent of the workers on a project come ultimately from other employments and 10 percent from outside the labor force, then in a mild recession it may be true that 81 percent come from other employments, 9 percent from outside the labor force and 10 percent from the ranks of the unemployed. But it strains credibility to think that, say, half of the jobs created by a project would be filled in a mild recession, by a net reduction in unemployment. Similarly, in a strong recession it may be that 20 or 25 percent of the jobs created are reflected in a net reduction of the ranks of the unemployed, but not 60 or 70 percent.

This determines the basic methodology for measuring the social opportunity cost of labor in periods of cyclical unemployment. The approach remains the same one that we have used up to now--working from estimates of the pattern by which new jobs created by a project will be "sourced." This

sourcing pattern, in turn, is modified in the presence as against what it would be in the absence of cyclical unemployment, but not drastically or dramatically so. As we move from a normal economy to a situation of mild recession, then strong recession, then deep recession, then mild depression, etc., the fraction sourced from the ranks of the unemployed will tend to grow at each step, but is unlikely to suffer sharp, discontinuous jumps.

How Many Jobs are Ultimately Filled from the Ranks of the Unemployed?

This is a serious conceptual problem, even after one has accepted the general approach outlined above. At issue is the distinction between the initial action and the ultimate effect. For example, nearly everyone will agree that if a firm, in a period of deep recession, happens to staff a new project exclusively with personnel hired away from other employers, this does not imply that the project will end up generating no reduction at all in the number of the unemployed. Obviously, most if not all of the firms that lost employees would try to replace them, and in the replacement chain that ensued, absorption of the unemployed would occur even if it had not taken place on the first round. At the other extreme, if the project is staffed exclusively from the pool of the unemployed, others in that pool will emerge from it more slowly than in the previous case, and those who newly join it will probably stay there longer.

It may be an oversimplification to assume that the ultimate sourcing pattern for newly-created jobs does not differ as between the two examples given above, but it nevertheless appears reasonable to assume that, in a number of repeated cases of project hiring, there will be a certain central tendency in the fraction of jobs created that is ultimately sourced from the ranks of the unemployed, and that this fraction will tend to be a function

of the cyclical stage of the economy. This fraction gives us the relative importance of the unemployed in the calculation of the social opportunity cost of labor.

The Supply Price of an
Unemployed Person

One of the most stubborn of all popular beliefs concerning the economy is that the opportunity cost of the time of people who would other-wise be unemployed is zero. Whole economic theories have been based on this fallacy, and somewhat like the protection issue, no matter how many times people have disproved its validity as an important proposition for economic analysis and policy, its ghost has always risen again from the ashes.

I believe that the best starting point for dealing with the opportunity cost of unemployed labor is to consider the question of labor force participation itself. We define the basic supply curve of labor as that which, in a sense, at each level of the wage, discriminates between those who seek work and those who do not. This supply price is critical in measuring the individual's (and society's) gain from his participation in labor market activity. Now it is true that volunteer labor exists, i.e., that there are people who have shown themselves willing to offer their labor services at a zero price. But the cases are few, and they are also very special in terms of the types of people involved and the types of services offered (volunteer services to hospitals, charities, recreational programs, etc.). On the whole, we can say that labor at a zero supply price is quite generally unavailable in the great bulk of occupations and skills for which a labor market exists.

I believe the voluntary supply price at which a person would enter

the labor market in general sets a floor to his personal opportunity cost. This is the price at which he would barely prefer to be out of the labor force rather than work. For many, this price might be quite low, say $80-$100 a week at current prices. But the fact that one would enter the labor market, even at a wage of $80 a week, does not mean that one would accept a job at $80 a week rather than stay unemployed for a while, in circumstances where the going market wage for the skill in question is, say, $200 per week. Perhaps the best definition of "search unemployment" is that unemployment which voluntarily occurs at wage levels in excess of the minimum wage necessary to induce an individual's participation in the labor market. It obviously incorporates the idea that at times a worker prefers to remain unemployed rather than take a given job, solely in order to spend his time physically seeking a better-paying, but otherwise similar job. But it also applies, or so it seems to me, to those who turn down a $50,000 a year job in business in order to seek a $30,000 a year post in academic life. And it merges into the issues concerned in geographical mobility; one may turn down a higher-paying job in Winnipeg in order to seek a lower-paying one on Cape Breton Island.

The underlying similarity of all these situations suggests to me that one need and should go no further than voluntary supply price, in seeking to define what we mean by the private opportunity cost of unemployed labor. Some find this ambiguous, since it is well known that one individual has different supply prices for different occupations, different locations, etc. But just as in a world of continuous labor market equilibrium the true opportunity cost of filling a truck driver's job in the Yukon will be different from that of doing a similar thing in Halifax, so too it will be when one happens to be absorbing the truck drivers involved from the ranks of the unemployed.

The Social Opportunity Cost
of Unemployed Labor

Thus we reach a quite simple and straightforward conclusion with respect to the social opportunity cost that we assign when a project or program absorbs unemployed labor. It is simply the supply price of that labor, adjusted for whatever externalities may be relevant. In this particular case, the most obvious such externality is unemployment compensation, which naturally ceases to be paid when an unemployed worker is thus absorbed. The saving of public funds that is involved is a genuine externality, because the worker, in choosing to accept employment, shows that he is thereby being compensated for the whole package (leisure plus unemployment compensation) that he is giving up. Hence one cannot say that the workers loss of UI income is cancelled by the public's gain The workers loss of UI income is already taken into account in his decision to accept a job. The public's saving of UI costs is therefore a genuine additional, external benefit, to be subtracted from the worker's voluntary supply price in the calculation of the social opportunity cost to be assigned, when unemployed labor is absorbed.

The Time Path of Sourcing for New
Jobs in a Cyclical Setting

The simplest way to visualize how cyclical unemployment should enter into the calculation of the social opportunity cost of labor is to think of a standard sequence of stages by which the economy emerges from a depressed state. For simplicity, consider four such states or stages: depression, deep recession, mild recession, and normal. Assume, too, that there is a normal sequence of recovery--say that to pass from mild recession to a normal economy typically takes a year, and that to recover fully from a deep

depression takes two years, while to recover from a depression takes three years. Moreover, again for simplicity assume that events typically follow a sequence in which the economy, recovering from a depression, passes in successive years through all four stages listed above. Likewise, an economy in deep recession would normally pass through one year of mild recession before reaching its normal state.

Thus we might have a time pattern of sourcing from the ranks of the unemployed, versus from normal sources, as given in Table 3.

TABLE 3

HYPOTHETICAL PATTERN OF SOURCING IN A CYCLICAL SETTING

State of Economy	0 Depression	1 Strong Recession	2 Mild Recession	3 Normal
Fraction sourced from cyclical Unemployed	.3	.2	.1	0
Fraction sourced from normal sources	.7	.8	.9	1.0

This sourcing pattern is to be thought of as incorporating all indirect as well as direct effects and to be essentially independent of the direct hiring pattern that might apply in any particular case. Note that if we are in a year of depression, and create 100 new jobs through a project, we would anticipate a reduction in the ranks of the unemployed by 30 this year, by 20 next year (as against what it otherwise would be), and by 10 the following year. No reduction of unemployment would be expected, as a consequence of the project, for the years beyond that.

The Social Opportunity Cost of Labor
Sourced from the Pool of Cyclically
Unemployed

In Table 4 we present a calculation of the social opportunity cost of labor drawn from the ranks of the cyclically unemployed. The basis of the table is that of Table 2, whose first two rows are reproduced without change. Total cash income is also transcribed from Table 2, and presented as column (3) of Table 4. The externalities associated with each "package" of activities also contain two from Table 2--the taxes that will be paid from the earnings of the new job are a benefit, and the unemployment compensation payments "created" along with the creation of temporary sector jobs are a cost, just as before.

An additional element of externality appears, however, in the form of "surplus to worker." Here it is deemed that the unemployed worker's supply price may fall short of his expected cash income when the economy is in a cyclical downturn. For the calculations we have allowed the supply price to fall 10 percent short of worker's cash income from the new "package" in a period of mild recession, 20 percent in a strong recession, and 30 percent in a depression. These figures are meant to be illustrative; if anything they are likely to exaggerate the difference between supply price and expected cash income.

Row (5) of Table 4 gives the externality associated with sourcing from the pool of unemployed; in this case it consists only of the unemployment compensation that workers taken from this source are assumed to have been receiving. The saving of these UIC outlays operates, naturally, to reduce the social opportunity cost of labor from this source.

Rows (6) and (7) of Table 4 compute the social opportunity cost of labor, first on a per calendar week basis, and then per week actually worked.

TABLE 4

EXAMPLE OF CALCULATION OF SOCIAL OPPORTUNITY COST OF LABOR SOURCED
FROM THE RANKS OF THE CYCLICALLY UNEMPLOYED

(in dollars per week)

| | Job Created in | | | |
| | Ontario | | Nova Scotia | |
	Permanent (a)	Temporary (b)	Permanent (c)	Temporary (d)
(1) Weekly market wage	200	200	150	150
(2) Fraction of time worked	1.00	0.80	,.00	0.60
(3) Total cash income (from Table 2, row 5)	200	184	150	126
(4) Externalities generated by "package" per week				
Taxes (from Table 2, .row 6)	-30	-24	-20	-12
Unemployment Compensation	0	+24	0	36
Surplus to worker depression [=.3x(3)]	-60	-55	-45	-38
strong recession [=.2x(3)]	-40	-37	-30	-25
mild recession [=1x(3)]	-20	-18	-15	-13
(5) Externalities generated by sourcing from the pool of cyclically unemployed				
Ontario (UIC = 120/wk)	.7(-120)	.7(=120)	.3(-120)	.3(-120)
Nova Scotia (UIC = 90/wk)	.3(-90)	.3(-90)	.7(-90)	.7(-90)
(6) Total social cost per week				
depression	-1	18	-14	13
strong recession	19	36	1	26
mild recession	39	55	16	38
(7) Total social cost per week worked [=(6)÷(2)]				
depression	-1	23	-14	22
strong recession	19	45	1	43
mild recession	39	69	16	63

The latter is a number that can be compared (and combined) with the figures
in row (9) of Table 2.

The Social Opportunity Cost of
Labor, by Cyclical Stage

In Table 5 we carry out the required combination of the results of
Table 2 and Table 4. Recall that for a depression, we have assumed that
30 percent of newly-created jobs are filled from the ranks of the unem-
ployed. Thus, for permanent jobs in Ontario the social opportunity cost
of labor, in the depression year, would be $.7 \times (182.2) + .3 \times (-1) = 127.2$
dollars per week. The following year (by assumption a strong recession
year) it would grow to $.8 \times (182.2) + .2 \times (-1) = 145.6$ dollars per week.
By the next year the social opportunity cost would reach $.9 \times (182.2) + 1 \times (-1$
$= 163.8$ dollars a week, and thereafter it would proceed at the normal level
of 182.2 dollars a week.

These calculations are replicated in Table 5, for the four cases we
have been treating (Ontario temporary and permanent; Nova Scotia temporary
and permanent). The resulting social opportunity cost figures are given in
row 5. As expected, the social opportunity cost of labor in each case shows
a monotonic increase as we proceed from the depression year to a year of
strong recession to a year of mild recession to a normal year. In terms of
magnitudes, the opportunity costs that we have calculated in this example
have depression year values in the neighborhood of 70 percent of normal-
year costs, in strong recession years they tend to be around 80 percent of
normal-year costs, and in mild-recession years they are invariably over
90 percent of the corresponding costs, as calculated for a normal year.
These results suggest that cases would be relatively rare in which the in-
troduction of cyclical labor-market considerations would be decisive in de-
termining the desirability of a major program or project.

TABLE 5

EXAMPLE OF CALCULATION OF THE SOCIAL OPPORTUNITY COST OF LABOR, BY CYCLICAL PHASE

(in dollars per week)

| | Jobs Created in | | | |
| | Ontario | | Nova Scotia | |
	Permanent (a)	Temporary (b)	Permanent (c)	Temporary (d)
(1) Weekly market wage	200	200	150	150
(2) Weekly cash income	200	184	150	126
(3) Social opportunity cost per week worked (normal sourcing, from Table 2, row 9)	182.2	235.2	135.8	240
(4) Social opportunity cost per week worked (sourcing from cyclically unemployed, from Table 4, row 7)				
depression	-1	23	-14	22
strong recession	19	45	1	43
mild recession	39	69	16	62
(5) Social opportunity cost per week worked, expected sourcing pattern				
depression [=.7x(3)+.3x(4)]	127.2	171.5	90.9	174.6
strong recession [=.8x(3)+.2x(4)]	145.6	197.2	110.6	200.6
mild recession [=.9x(3)+.1x(4)]	163.8	218.6	125.8	222.3
normal year [=(3)]	182.2	235.2	135.8	240.0

V. The Main Inferences from this Study

The lessons to be drawn from this exercise are quite simple:

1. It is quite possible, even likely in some circumstances, that the end result of the creation of a number of new jobs will be an increase in the number of unemployed.

2. It is only in rare circumstances that the institution of a major project or program will be justified on account of the effect it has in absorbing the cyclically unemployed.

The first of these lessons is a direct consequence of the discovery (which I would attribute to Professors Jenkins and Glenday) that, in Canada, there is an extremely strong tendency for people employed in certain types of activity (the so-called "temporary sector") to be subject to successive spells of unemployment, while those in the remainder of the economy (the "permanent sector") remain essentially untouched.

The cost-benefit lessons are clear--the creation of temporary sector jobs for the purpose of absorbing unemployment is counterproductive. It actually creates more unemployment than it absorbs, and imposes burdens on taxpayers over and above the direct costs associated with the hiring of the workers.

In contrast to the above, the creation of permanent-sector jobs is beneficial. It produces positive external effects because some part of the jobs thus created is filled by drawing, in the final analysis, from temporary sector sources. As the number of temporary sector jobs is reduced, so also is the associated unemployment, and with it the cost (borne by society as a whole) of UIC payments.

The second lesson concerns cyclical unemployment. We have seen that the creation of jobs in a setting of cyclical decline carries some

degree of extra benefit vis-a-vis a normal year. But the benefit is quite transitory. It is unlikely to lead to justification of a project whose benefits would otherwise exceed its costs, if that project has a life of 10 or 20 years or more. On the other hand it can be an important consideration in justifying a project for the immediate purpose of "mopping up" unemployment. The critical consideration here is that such a project must be close to being economic "in its own right," i.e., close to being justified even when the full, normal social opportunity cost of labor is assigned. In such a case, the extra "discount" of 10 or 20, or an extreme case of 30 percent on labor cost during the project's initial year or so (due to the cyclically depressed state of the economy) may turn a marginally unacceptable project into a marginally acceptable one. It is, however, unlikely to render acceptable a project that was far from the margin to begin with, or to turn an otherwise marginal project into one for which benefits far exceed costs.

It follows from the above that social benefits are virtually certain to fall short of costs on so-called "leafraking" type projects (that is, projects for which no significant value is assigned to the benefit produced by the use of labor, and on which the purpose is simply to give employment as such).

If one goes beyond the evaluation of projects and programs, one can draw yet a further lesson from the analysis underlying this paper. This concerns the way in which unemployment insurance payments operate to raise the social opportunity cost of temporary sector jobs, over and above the market wage. From a strictly economic point of view it would be wise to take steps to "internalize" this externality. The policy measure which would come cosest to accomplishing this task would be the implementation of

experience rating in establishing the level of employer (and possibly employee) contributions to the UIC system. By raising contributions in industries (i.e., what we have called the temporary sector) tending to generate disproportionate amounts of unemployment, such experience rating would at the very least cause those who demand the products of such industries to bear the burden of the social costs involved. In addition, of course, the experience rating would eliminate what is now, in effect, an implicit subsidy to industries generating large quantities of unemployment, and in the process improve the efficiency with which the economy operates.